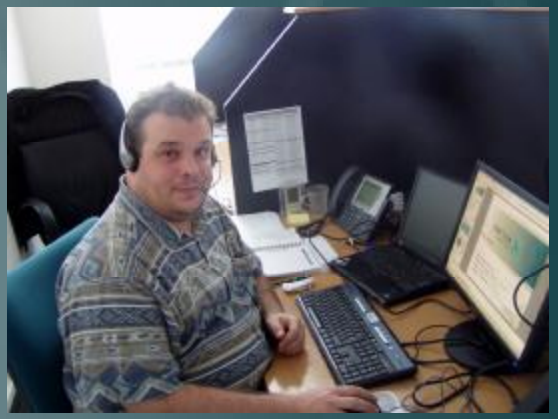
ALEF NULA

DŮVĚŘUJTE SILNÝM



Stanislav.Hrda@alefnula.sk

Cisco Wireless Mobility Express pre malé podniky a Cisco Unified Wireless Network riešenia pre SMB stredné podniky.

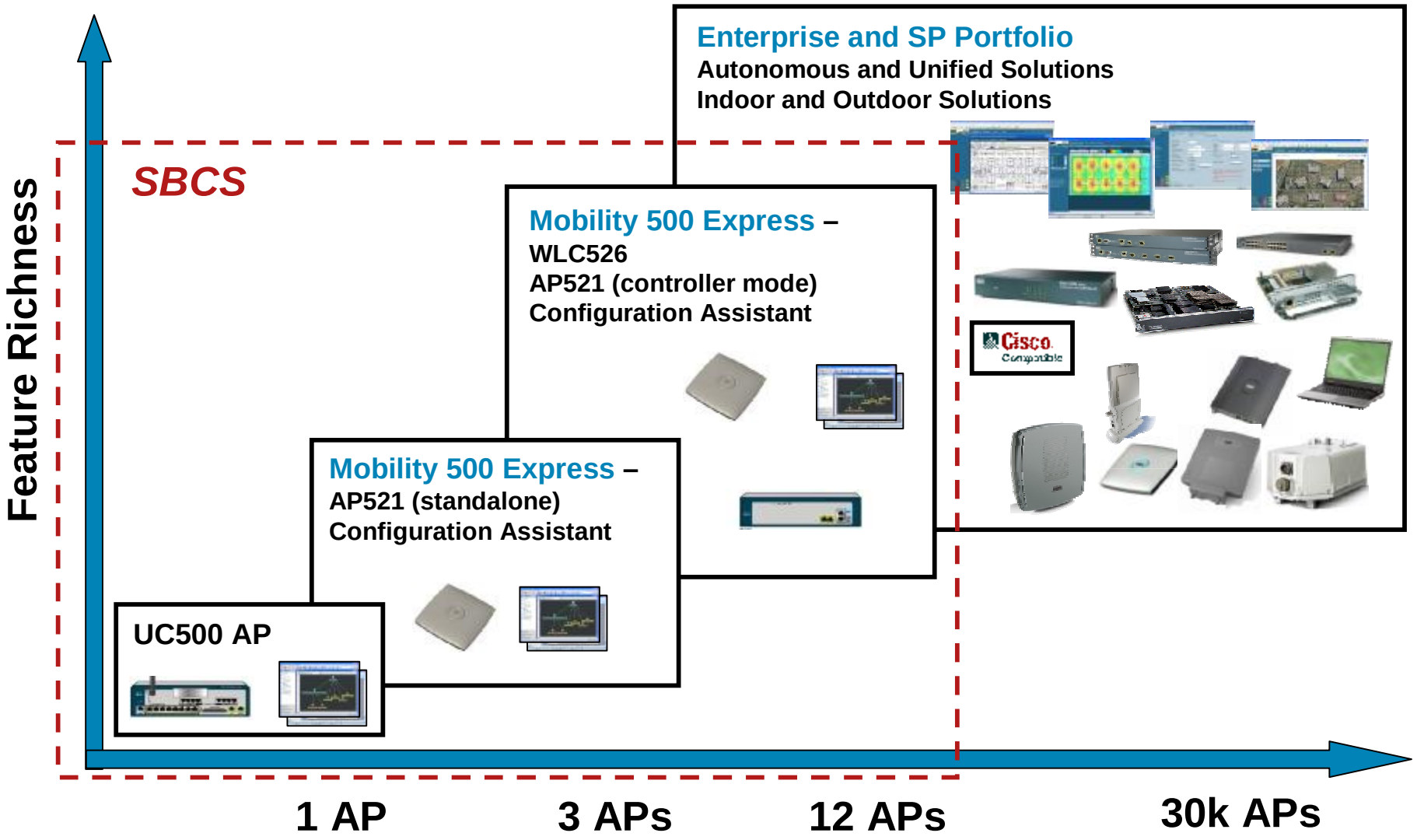
Session number: 923 274 942

Bezplatné číslo (volanie cez Skype): *+1 866 432 9903*

Lokálny tel. pre Česko: *+420 221 435 100*

Lokálny tel. pre Slovensko: *+421 258 255 309*

Cisco WLAN Solutions Overview



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Cisco SMB Solutions Portfolio

Smart Business Communications System

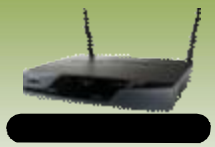
- Designed for SMB
- World class service and support

Complete SMB Product Portfolio

- Best of breed solutions
- Scalable designs
- World class service and support

Smart Business Communication System

Simple, Complete, Secure Communication Solution for SMB

Unified Communications	IP Phones	Switching	Wireless	Teleworker
				
UC500 Series	7900 Series	CE520 Series	AP500 WLC 500	Cisco 870W
• Desktop & Rackmount Models • Optional Integrated WLAN AP on desktop models	Phones are supported	24 port rack mount models • Companion Switch for UC500	Unified Wireless Solution with Mobility Express	Wireless Access, Remote IP Phone extension

Business & Productivity Applications

Cisco Smart Assist Features
Cisco Configuration Assistant
Cisco Monitor Director

Cisco Wireless Mobility Express

- Part of the Smart Business Communications System
- Works equally well as a standalone solution
- An optimized WLAN solution for SMB
  - Easy to configure
  - Easy to manage
  - Grows as your business grows

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Cisco Wireless Mobility Express

- Enables real-time access to core business applications for mobile workers
- Provides enterprise-class secure connectivity
- Highly scalable
- Low total cost of ownership

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Cisco Mobility Express Solution

A Solution That Evolves with You

Integration

- Part of the Smart Business Communications System

Flexible Cost

- Pay as you grow
  - Hardware
  - Software
  - Advanced mobility services

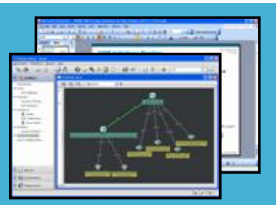
Business-grade features

- Reliability built-in
- Security
- Scalability
- Advanced mobility services

Cisco Mobility Express Solution

Application-Based

Access Points, controllers, plus application Servers



Controller-Based

Access points plus controllers

Standalone

Access points

Adapt to Your Level of Sophistication

Grow with Your Business

Offer a Mobile Foundation for All

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Access Points

Cisco 521 Wireless Express Access Point

Indoor Access Point

- Standalone mode: AIR-AP521G-x-K9
- Controller-based mode: AIR-LAP521G-x-K9
- List price $499

- Characteristics
  - Up to three APs can be managed through Cisco Configuration Assistant (CCA) in standalone mode
  - Up to six APs can be managed through CCA in controller-based mode
  - APs only associate with Cisco Wireless Express Mobility Controllers
- Features
  - Single radio 802.11b/g
  - Enterprise class security
  - Industry's best range and throughput
  - Simultaneous air monitoring and traffic delivery
  - Flexible, secure mounting options
- Benefits
  - From secure coverage to advanced services
  - Zero touch management
  - No dedicated air monitors

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Controllers

Cisco 526 Wireless Express Mobility Controller

- SKU: AIR-WLC526-K9
- List Price: $1799

- Characteristics
  - Managed through Cisco Configuration Assistant
  - Supports up to six Cisco Wireless Express APs
  - Two 10/100 Ethernet ports
  - Only manages Cisco Wireless Express APs
  - Up to two controllers per network
- Features
  - Centralized management of users, APs, policies, etc.
  - Automated radio resource management
  - EZ virtual network with up to eight SSIDs/VLANs
  - Mobility management
  - Guest access ready
  - Optimized voice over Wi-Fi ready
- Benefits
  - Advanced enterprise grade features incl. Security
  - Cost effective solution for SMB
  - Ideal for data, voice, and video
  - Integration with SBCS

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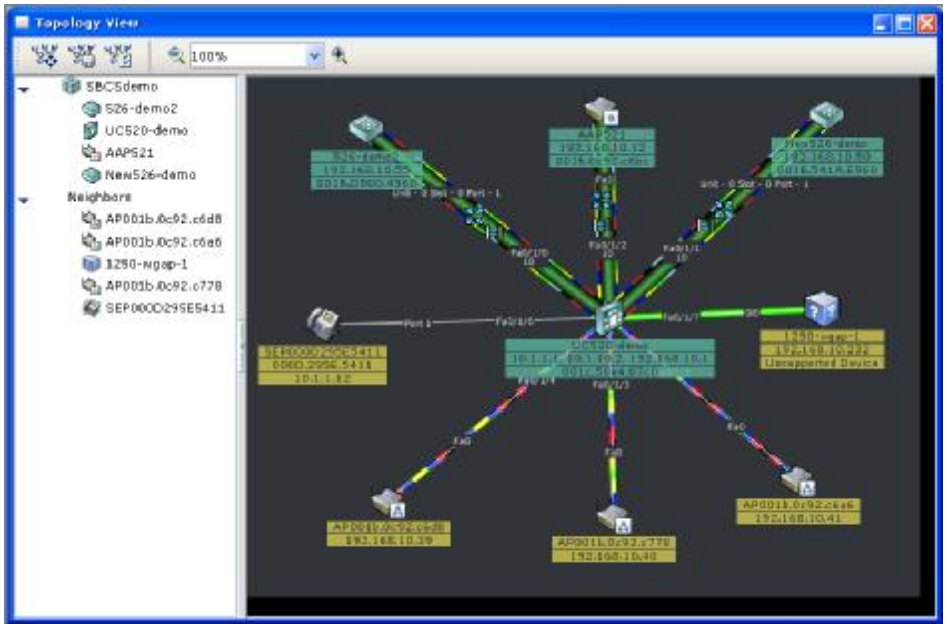
Cisco Configuration Assistant v1.5

- Supports all SBCS components
- Supports Mobility Express with new features & enhancements
- Wizards simplify configuration of access points / controllers
- Free download from CCO
- Runs on Windows XP



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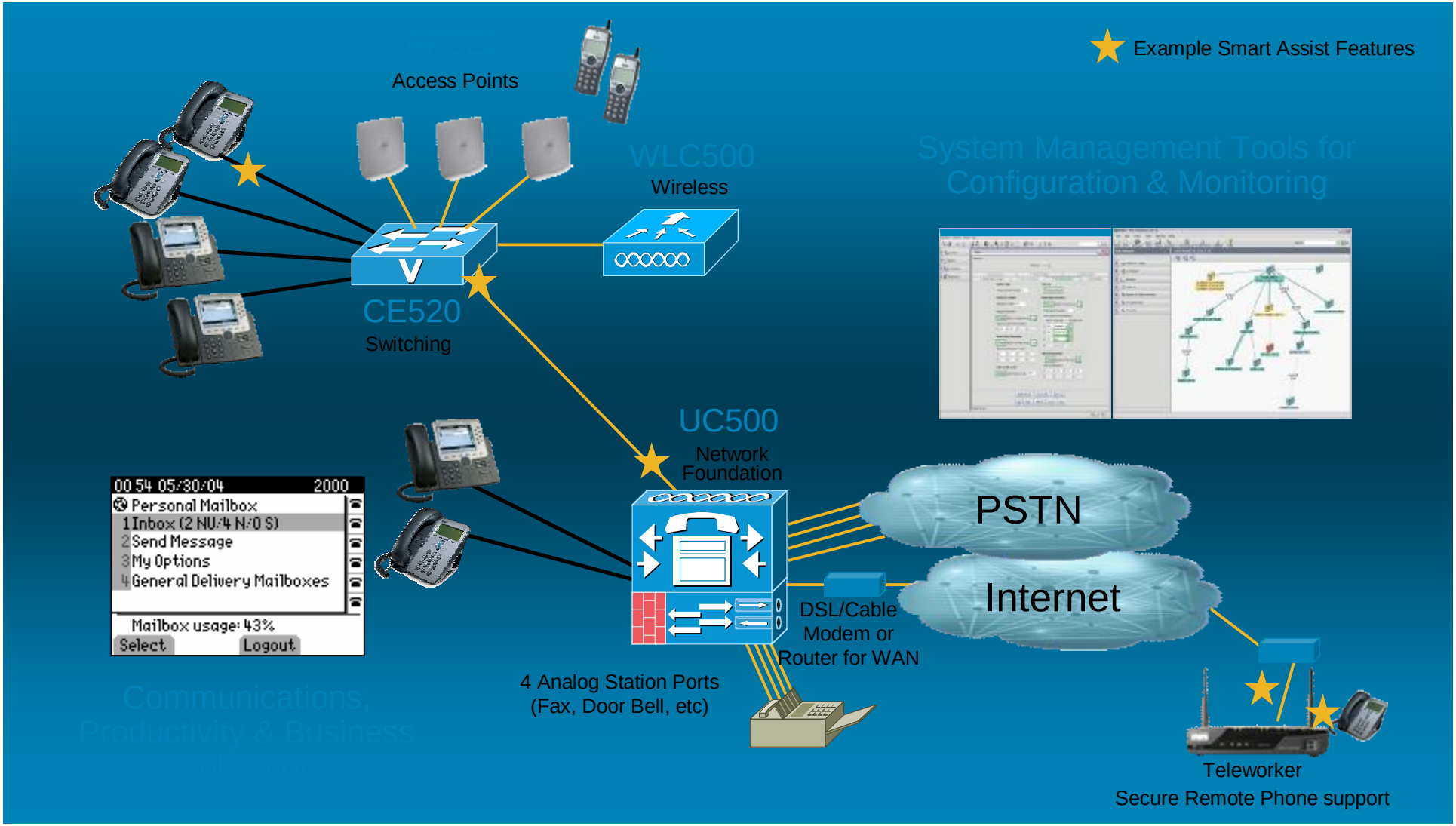
Typical Deployment Example



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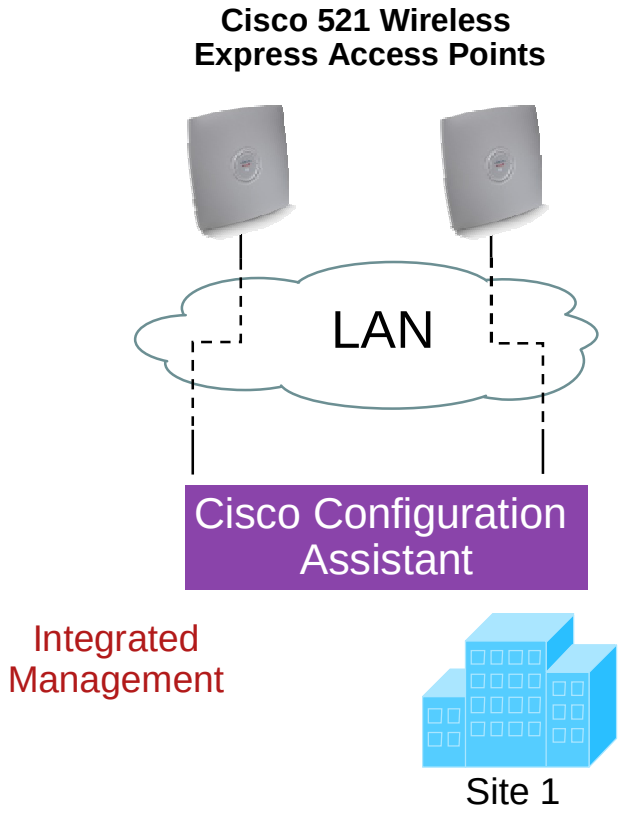
Mobility Express

Standalone access points

Provide a **Mobile Foundation** for Simpler and Faster Adoption

Company Name: MobExpress	
Number of Sites	1
Number of Employees	50
Number of Business Partners	0



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Mobility Express

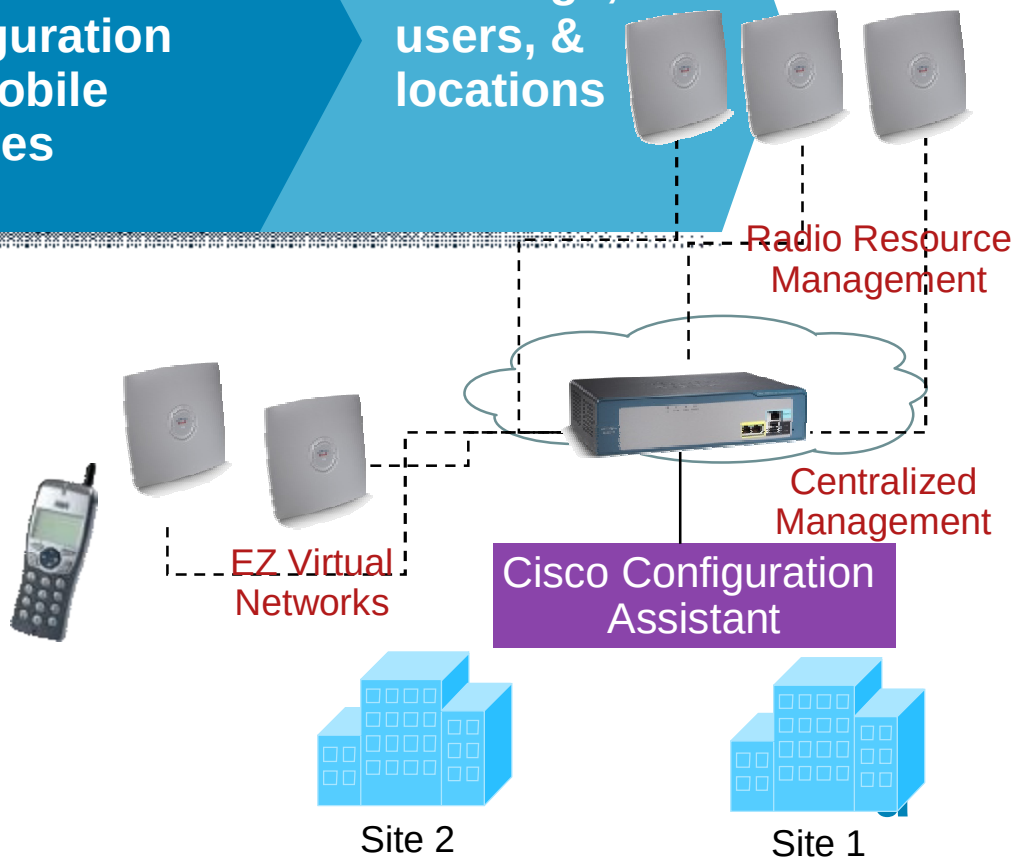
Controller-based architecture

Provide a **Mobile Foundation** for Simpler and Faster Adoption

Add Controller for **Central Configuration and Mobile Services**

Increase **coverage, users, & locations**

Company Name: MobExpress	
Number of Sites	2
Number of Employees	150
Number of Business Partners	20



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Connecting Standalone Access Points

- Connect PC running CCA to the switch
- Connect up to three APs to PoE ports on the switch (use supplied power injectors if PoE ports are not available)
- If CE 500 series is deployed, configure smart ports for APs
- APs will obtain IP address from the DHCP server – be sure DHCP server has been configured on the UC500 or that a DHCP server is set up on the network

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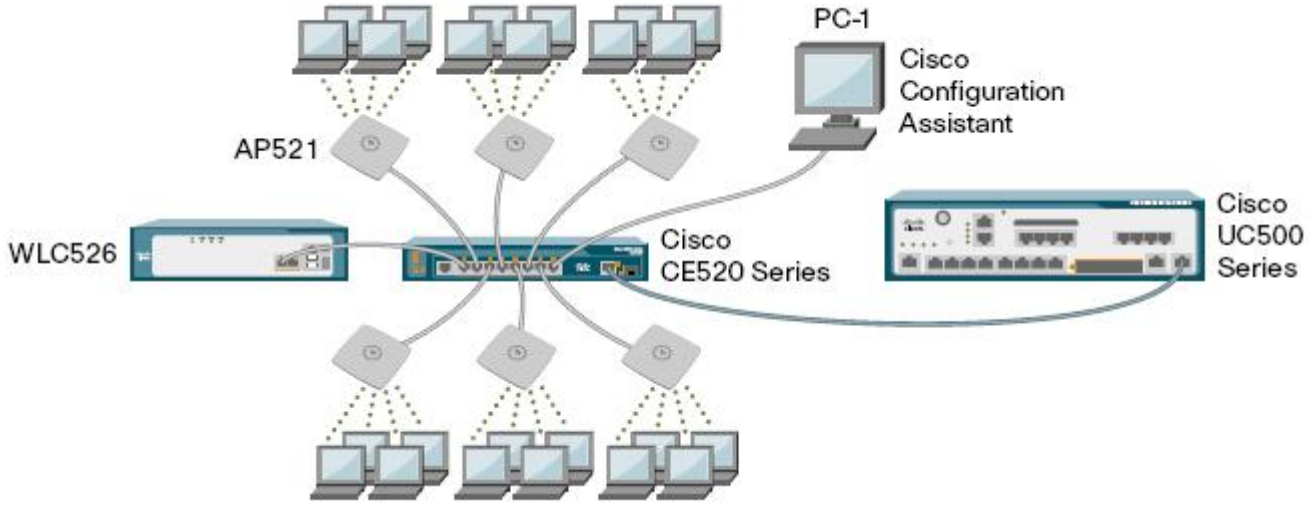
Connect Controller to the Network

- Connect the controller to the CE500 series switch
- Be sure smart port is configured as ‘Switch’
- While controller reboots, connect PC with CCA to the CE 500 series switch, making sure it is on the same subnet as the controller and switch
- Launch CCA



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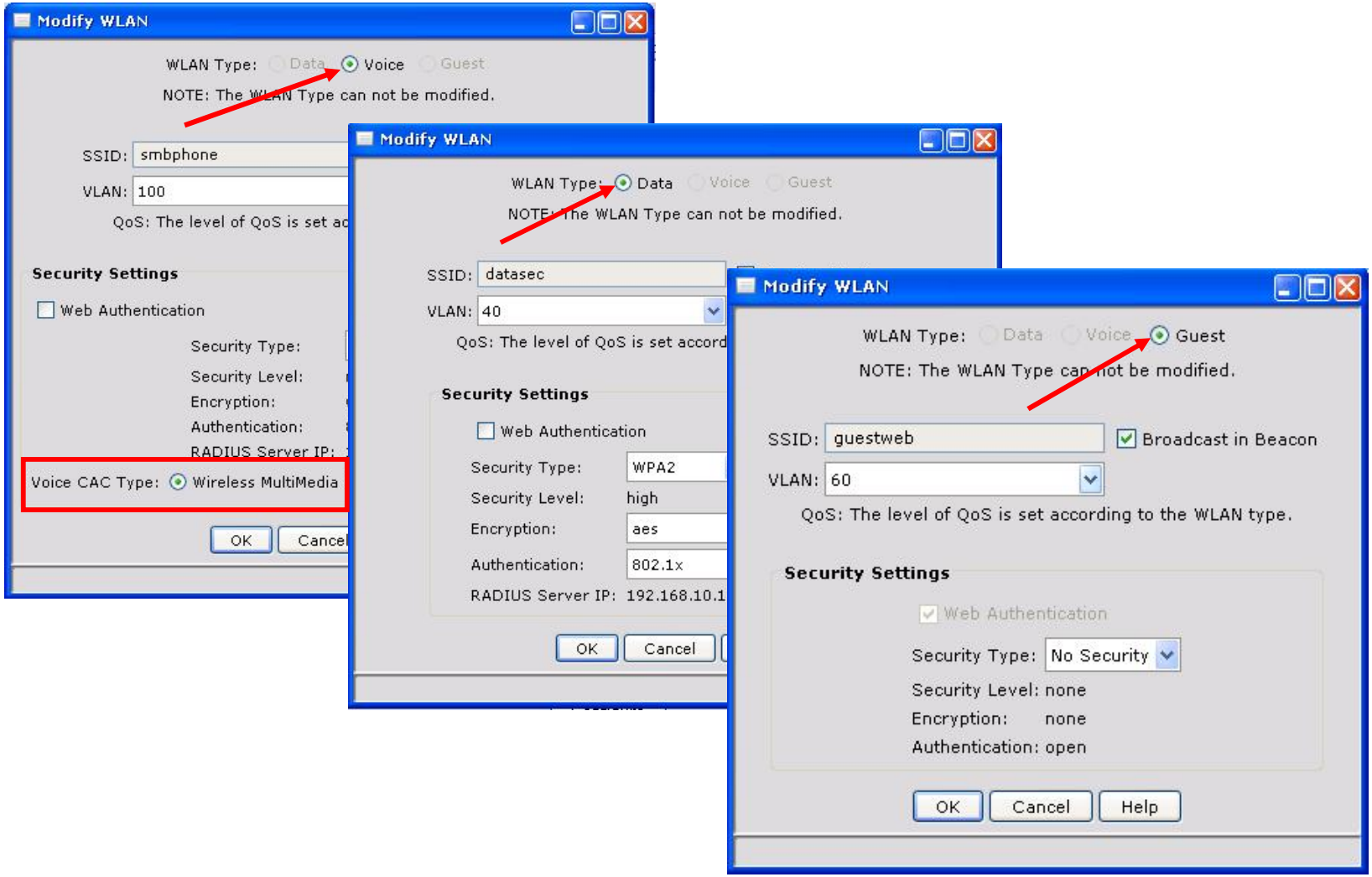
Support for Voice, Data, Guest WLANs



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CUWN Products for SMB

- Often sold to SMB customers:
  - Aironet 1130AG Series APs
  - Aironet 1240AG Series APs
  - 2100 Series WLAN Controller
- “Entry-level” enterprise products for SMB customers who want advanced security, mobility applications, scalability
- Enables more AP and radio choices
- Scalability to meet the requirements of small businesses to large enterprises
- Stronger investment protection

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Cisco Mobility Express Solution

- Lower total cost of ownership
  - TCO 30–40% lower than Cisco Unified Wireless Network
- Management
  - Cisco Configuration Assistant designed specially for SMBs, integrates Mobility and Unified Communications
- Capacity requirements for the future
  - Can support up to 12 Cisco Wireless Express access points
- Features
  - Simple feature set, suitable for SMB applications

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Deployment Recommendations

	Cisco Mobility Express Solution SMB focused	Cisco Unified Wireless Network Enterprise Focused
Capacity/ Scalability	6 APs per controller 2 controllers per network Stay within the 500 Series	No limitation H-REAP supported All APs supported on all controllers
Roaming	2 controllers, 1 mobility group Layers 2 and 3	72 controllers, 24 mobility groups Layers 2 and 3
Security	Encryption and authentication	Encryption and authentication Intrusion detection and prevention
Integration	Shared management with SBCS (All elements/technologies included)	Some features share management with the wired infrastructure (security)
Mobility Applications	Simplified Voice over Wi-Fi Guest access	Voice over Wi-Fi Full Guest access Location-based services
Management	Cisco Configuration Assistant (View of multiple networks)	Wireless Control System
Cost	AP Not to Exceed $500 Controller Not to Exceed $2000	AP: $599–$999 Controller: $3250–45,995

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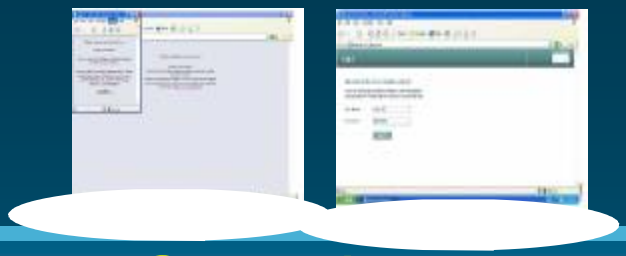
Advanced Mobility Express Services

Controller-based solution improves productivity, operations



Guest Access

- Customized portal page for guest login and authentication
- Simple set-up and admin of secure access for visitors
- Segments guest traffic on separate VLAN

Voice over WLAN

- Single & Dual Mode Phones
- Optimized QoS, Call Admission Control, & fast inter-AP hand-off
- Voice optimization button eases AP and 7921 configuration
- Voice configuration templates

Cisco Wireless Mobility Express vs. Cisco Unified Wireless Network

Wireless Controller Features	SBCS	CUWN
Zero touch LAP support	ü	ü
Layer 3 support	ü	ü
Multiple WLANs	ü	ü
Multiple VLANs (Dynamic Interfaces)	ü	ü
Security: WEP, WPA, WPA2, MAC, ACL	ü	ü
RADIUS 802.1x Authentication	ü	ü
Voice over WLAN ready	ü	ü
WMM support	ü	ü
Layer 2 and 3 roaming	ü	ü
Wireless Guest User access	ü	ü
Internal and Customizable Web Portal support	ü	ü
Lobby Admin support (Web UI)	ü	ü
Auto RM support (Auto RF)	ü	ü
Wireless Protection Policies	ü	ü
802.11b/g support	ü	ü
Rogue Detection (Web UI)	ü	ü
Multiple Countries support	ü	ü

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Cisco Wireless Mobility Express vs. Cisco Unified Wireless Network

Wireless Controller Features	SBCS	CUWN
CCA – Configuration Assistant	ü	
Dynamic VLAN Synchronization	ü	
Wizard Device Setup	ü	
SNMP support (Web UI for Monitor Director)	ü	
WCS support		ü
Location Base services		ü
Mesh support		ü
H-REAP support		ü
Local EAP		ü
Internal RADIUS Server		ü
Internal DHCP Server		ü
Wired Guest User access		ü
AP Monitor/Sniffer mode support		ü
Intrusion Protection Services		ü
802.11a/n support		ü
Multicast support		ü
Full SNMP support		ü

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WLAN AP Comparison

Companies	Cisco	D-Link	NETGEAR	3Com	ProCurve
Indoor – Dependent (requires controller)					
Single Radio a/b/g	521 (b/g), 1130(b/g)	DWL-2130AP DWL-2230AP DWL-3140	WGL102		
Dual Radio a/b/g	1130, 1240	DWL-7130AP DWL-7230AP DWL-8220AP	WAGL102	7760, 8760	
Indoor Standalone					
Single Radio a/b/g	521 (b/g), 1130(b/g)	DWL-2200AP	WG302, WG602		420
Dual Radio a/b/g	1130, 1240	DWL-7100AP DWL-7200AP	WG602	7760, 8760	530, ProCurve 10ag

Cisco Wireless Competitive Reference Guide - http://www.cisco.com/web/partners/downloads/partner/WWChannels/technology/wireless/download/wireless_crg.pdf - Requires CCO logon

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WLAN Controller Comparison

Companies	Cisco	D-Link	NETGEAR	3Com	ProCurve
Distribution					
	4402 *APs: 12 to 50*				
Integrated Access					
Integration with Switching	3750G *APs: 12 to 50*	DWS-3250 DWS-3227/3227P DES-1228P DWS-1008 *APs: 12 to 50*	WFS709TP *APs: 16 to 48*	3CRUS2475 *APs: up to 24*	
Integration with Routing	WLC for ISR platforms *APs: 8 to 12*				
Small Office					
	526 *APs: 1 to 12*				
	2106 *APs: 6*			ZD 1006 *APs: 1 to 6*	
	WLC for ISR *APs:* *1 to 12*				

Cisco Wireless Competitive Reference Guide - http://www.cisco.com/web/partners/downloads/partner/WWChannels/technology/wireless/download/wireless_crg.pdf - Requires CCO logon

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Security – Alphabet Soup

802.1X	**Provides a framework for authenticating users and controlling access to a protected network and dynamic encryption keys to protect data privacy**
EAP	**Extensible Authentication Protocol – authentication framework for wireless and wired Ethernet networks**
TLS	**Transport Layer Security. Designed to authenticate and encrypt data communications, prevent eavesdropping, message forgery, and interference**
PEAP	**Protected Extensible Authentication Protocol (802.1X authentication)**
LEAP	**Lightweight Extensible Authentication Protocol (Cisco proprietary)**
TKIP	**Temporal Key Integrity Protocol. Wireless security encryption mechanism in WPA**
AES	**Advanced Encryption Standard**
MIC	**Message Integrity Check**
WEP	**The original security standard used to encrypt wireless network traffic**
WPA2	**Wi-Fi Protected Access 2. Strong data protection and network access control. Uses FIPS 140-2 compliant AES encryption algorithm and 802.1X-based authentication**
LWAPP	**Lightweight Access Point Protocol can control multiple access points at once**
CAPWAP	**Control & Provisioning of Wireless Access Points**
X.509	**ITU-T standard for public key (cryptography) infrastructure; specifies standard formats for certificates and certification path validation algorithm**
FIPS	**Federal Information Processing Standard**

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Wi-Fi Protected Access

- What are the differences between WPA / WPA2?
  - Authentication / encryption standards for /clients and APs
  - 802.1x authentication
  - WPA uses TKIP encryption
  - WPA2 uses AES encryption
- Which should I use?
  - Gold, for supporting NIC/OSs
  - Silver, if you have legacy clients
  - Lead, if you absolutely have no other choice (i.e., ASDs)

Gold

WPA2/802.11i

- **EAP Fast/TLS/PEAP**
- **AES**

Silver

WPA

- **EAP-Fast/TLS/PEAP**
- **TKIP**

Lead

Dynamic WEP

- **EAP-Fast/LEAP**
- **VLANs + ACLs**

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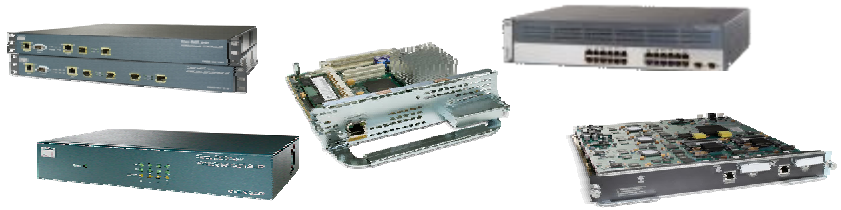
Cisco Unified Wireless Network

Products / Solutions

Wireless Control System

WLAN Controllers



Access Points

Controller based mode

Standalone mode

Associated Benefits

- Simplified management
  - *For more than two controllers*
- Integrated wired / wireless management

- Centralized management
- Integrated form factor
- Dynamic RF management
- Advanced security
  - *Secure guest access*
  - *Intrusion detection & prevention*

- Affordable entry level solution
- Benefit from the latest Wi-Fi standards
- Investment protection

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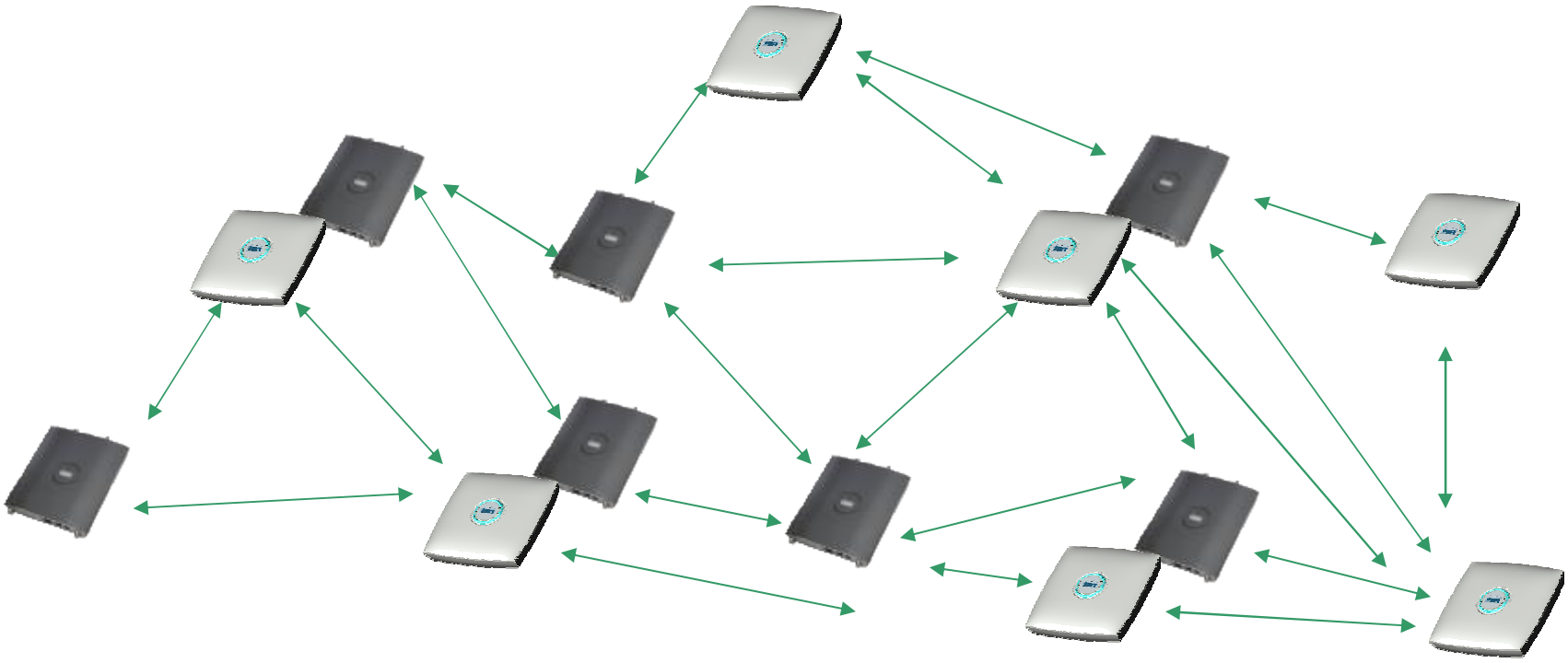
Autonomous Deployments Originally Had Little Coordination

- Each AP had its own view of the network – like standalone cell towers
- No hierarchical view of the RF – or the network



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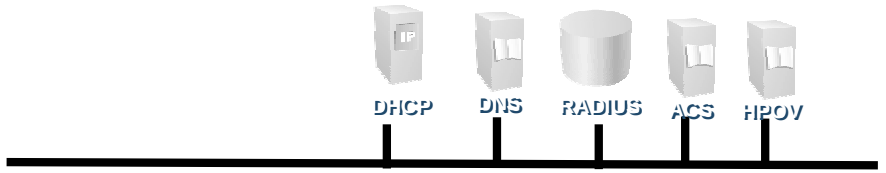
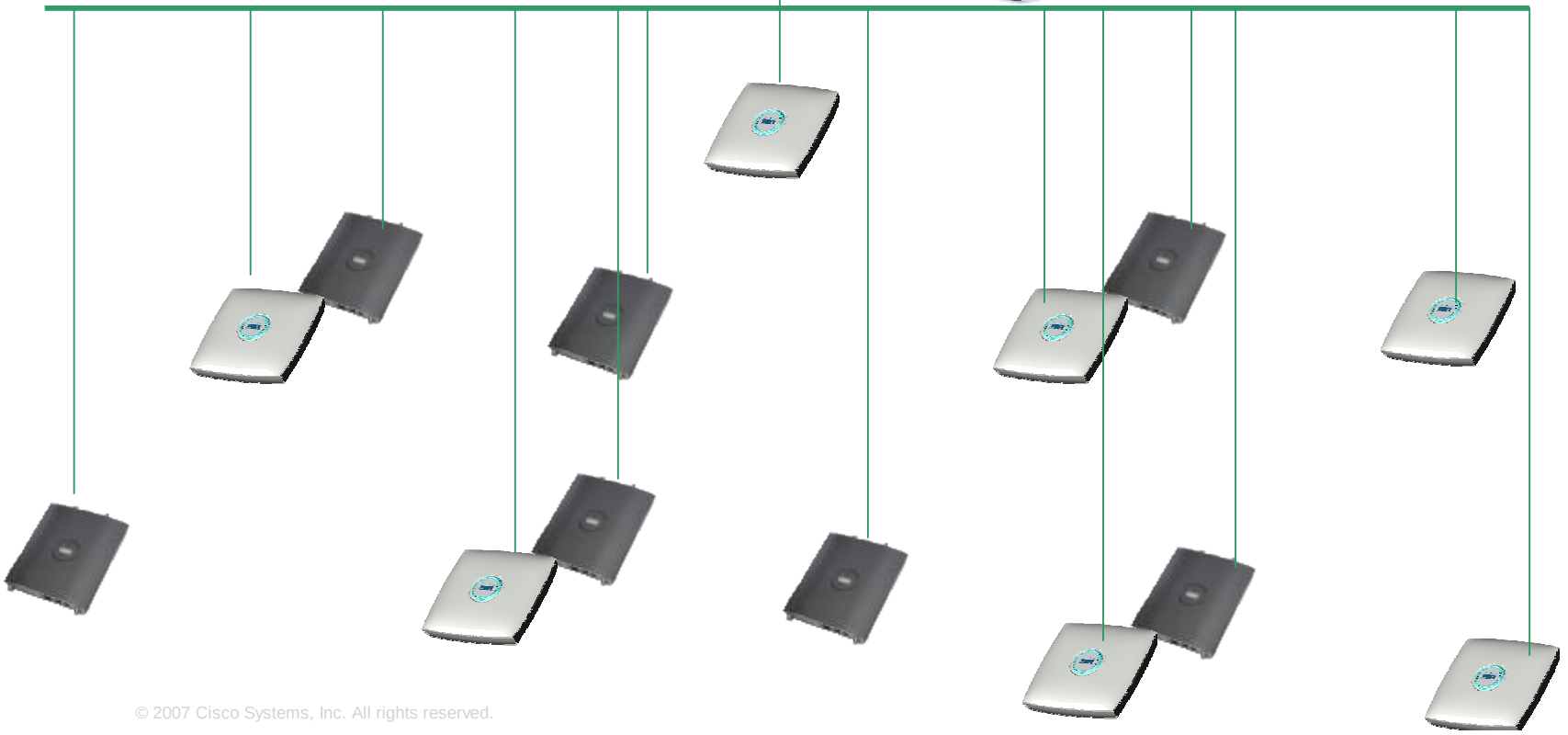
Enter The Controller



Control and Management

LWAPP (CAPWAP)



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Benefits of Controller-Based Architecture

- Centralized configuration and management
- Roaming capabilities for true mobility
- Advanced services
- Radio Resource Management
- Client load balancing

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RRM: Dynamic Channel Assignment

- Channel 1 (2.4 GHz) is Access Point default
- AP reports metrics to controller:
  - Load: % total time transmitting/receiving 802.11 frames
  - Noise: AP calculated noise values on each serviced channel
  - Interference: % taken up by contending 802.11 transmissions
  - Signal Strength: RSSI values of the AP's neighbors
- RRM makes changes to the channel plan, if necessary
- Logic is applied to minimize changes
- Running APs return to default assignment on reboot

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Why Do Customers Choose Cisco?

Industry leading wireless solution

Proven Customer Track Record
§ 5+ Million Cisco APs deployed worldwide
§ 128,000+ Cisco WLAN customers worldwide
§ 95% of Fortune 500 companies use Cisco products
§ Cisco ranked Top 10 Most Powerful Networking Company by Network World
§ Whole offer: technologies, service and support, flexible financing or leasing options and industry-specific solutions
§ Market Leadership: 61% market share, significantly more share than nearest competitors (Aruba, Motorola)

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Why Do Customers Choose Cisco?

Driving Industry Standards

- Wi-Fi Alliance founding member
- Founding contributors to Network World's "Wireless Wizards" column
- Award winning CCIE Program

Proven Track Record of Innovation

- Initial author of 802.11 and LWAPP
- Chair of numerous IEEE Committees
- Cisco spends more on Wireless R&D than the combined revenue of our two top competitors

Smart Business Applications

- Mobility Services
- Technology Developer Partners

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Cisco Compatible Extensions

The Standard for Client Advancement

Over 90% of Client Devices Cisco Compatible

http://www.cisco.com/go/ciscocompatible/wireless

Client Devices

Features

- Assured compatibility with 400+ devices
- Standards-based
- Enhanced security, mobility, and performance
- Supports Mobility Services i.e.. Location, voice

Benefits

- Accelerates innovation
- Supports diverse enterprise applications
- Ensures multi-vendor interoperability
- Enables simplified deployment of mobile WLAN clients

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Ďakujem za pozornosť.

Q & A?

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